on record while catches and catch-per-unit-effort were the lowest on record. Data for 1989 indicate further decline (DMF Unpublished Data). It has been suggested that water quality problems in spawning and nursery areas have inhibited stock recovery. Blue-green algae blooms during late spring may interfere with early juveniles by affecting the food chain, physically affecting individual fish with their filaments, or releasing toxins.

C. 2. Bluefish

Bluefish are very important to both sport and commercial fishermen. Long haul seines, pound nets and gill nets account for most of the commercial catch in the estuarine system. Most of the total catch comes from the near-shore ocean. Most recreational catches are taken by trolling and surf casting. Abundance has been high all along the Atlantic coast since the mid-1970's, making bluefish one of the few species consistently available to all fishermen. Their wide distribution and abundance may indicate that bluefish can "co-exist" with civilization better than most other species. However, bluefish have been found to carry varying amounts of contaminants. A recent federal study of PCB's indicates that there is no general hazard to the public, although some large bluefish from various Atlantic coastal sites, including North Carolina, contained PCB concentrations exceeding the federal action level of 2 parts per million. Data from NMFS (NMFS 1987, 1988, 1989) indicate that the total recreational catch along the Atlantic coast in 1988 fell by half from the catches in 1986 and 1987. A coastwide management plan for bluefish has been prepared (Mid-Atlantic Fishery Management Council 1989) and will probably be implemented early in 1990.

C. 3. Catfish

Channel catfish and white catfish are taken principally in western Albemarle Sound, Chowan River, and Roanoke River in pound nets, gill nets, and catfish pots. Landings have varied, generally trending downward since the mid 1970's. Catfish are quite tolerant to degraded water quality, especially to low oxygen levels. However, they are susceptible to red sore disease, a bacterial infection prevalent in the Albemarle Sound area during the 1970's. Little biological research has been conducted on catfish in the Albemarle area (Mauney 1969; Keefe and Harriss 1981) and no cause can be stated for the apparent decline in landings.

C. 4. Atlantic Croaker

Atlantic croaker is one of North Carolina's most important finfish for both commercial and recreational fishermen. Some large year classes were produced during the mid and late 1970's which provided record landings during 1976-1980. During this period, relatively large numbers of three-and four-year-old fish were taken. Recreational fishing in Pamlico Sound was so good, that the term "croaker boats" was used to describe the large fleets of 16-25 ft recreational fishing boats which fished in Pamlico Sound during that period, regardless of their target species. The ocean fisheries (gill net and fish trawls) have gradually come to dominate total croaker landings in recent years. Recent commercial landings (DMF Unpublished data) in the fisheries have come principally from long haul seines and pound nets, with few large fish. Reasons for the increase and decline in apparent croaker abundance are unknown but are probably environmental conditions in ocean spawning areas and estuarine nursery areas. Croaker spawn principally during fall-spring, and extreme winter conditions may cause mortality of eggs, larvae, or early juveniles.